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54 Improved filter assemblies.

57 A filter module (11) comprises a housing divided internally by a partition (14) into two compartments (15, 16). At least one hollow cylindrical filter element (12) is housed in one of the compartments, the or each filter element fitting about an opening (19) in the partition (14). A filter assembly (10) comprises a plurality of filter modules (11) mounted in a fluid flow line (13) such that incoming fluid enters one of the compartments, flows through the walls of the filter elements and filtered flow emerges from the other compartment.

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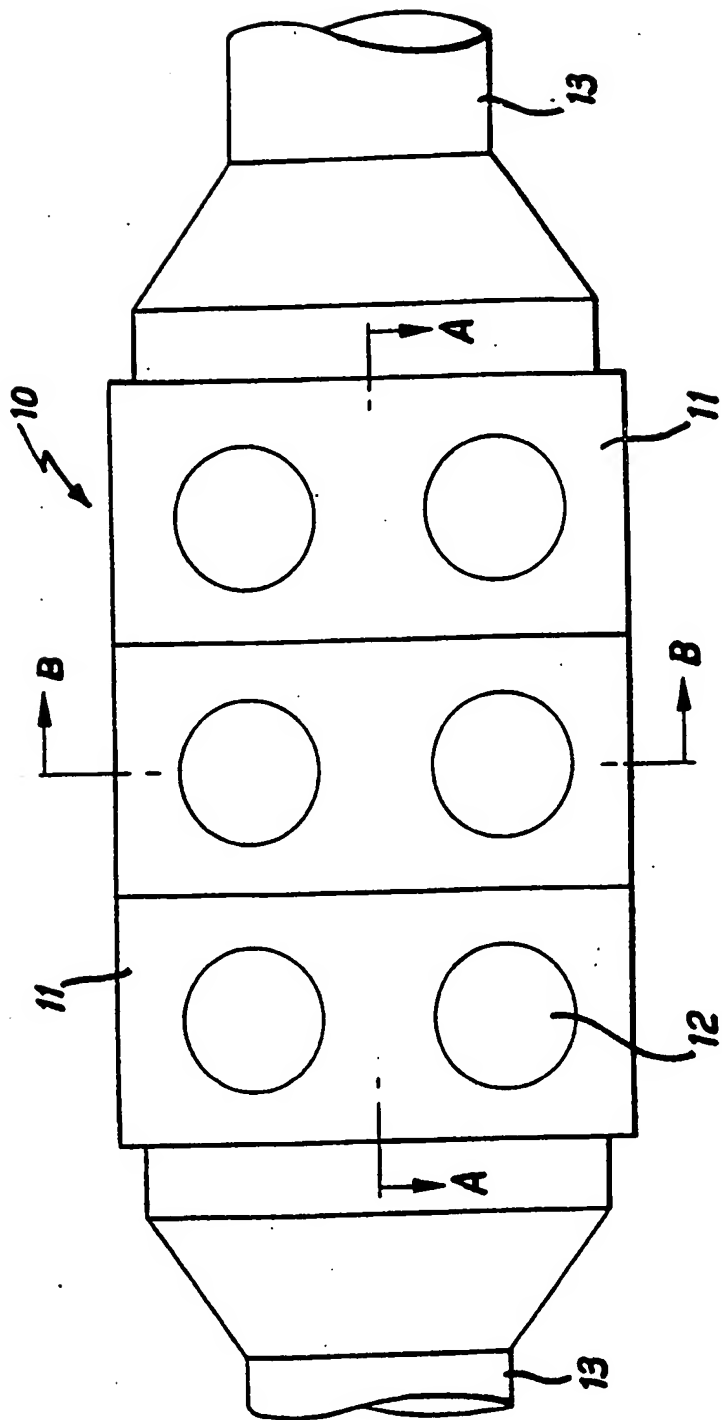


Fig. 1

The present invention concerns filter assemblies.

In particular the invention is concerned with filter assemblies of simple fabrication which can be included in duct work and the like fluid flow lines and occupy less space than existing filter assemblies.

According to one aspect of the present invention a filter assembly comprises at least one filter module insertable in a fluid flow line, the module containing removable hollow cylindrical filter units.

Preferably, the or each module contains a pair of filter units, the units being mounted on one side of a plate or wall which forms a partition between clean and dirty sides of the filter, that is filtered and unfiltered sides.

According to another aspect of the present invention a filter assembly for insertion in a fluid flow line comprises a plurality of intercommunicating filter modules, each module comprising a housing with an internal partition dividing the housing into two compartments, the compartments intercommunicating and connectable to the flow line, at least one filter element in one of the compartments of each module and mounted at an opening in the partition whereby flow from the flow line enters the compartments at one side of the partition, passes through the filter elements and filtered flow exits along the flow line from the compartments at the opposite side of the partition.

The invention will be described further, by way of example, with reference to the accompanying drawings; in which:

Figure 1 shows diagrammatically a filter assembly formed from three filter modules and arranged in a gas flow line;

Figure 2 is a section on A-A in Figure 1; and

Figure 3 is a section on B-B in Figure 1.

With reference to Figure 1, a filter assembly 10 is formed from three substantially identical filter modules 11 with each module containing a pair of cartridge type or hollow cylindrical filter elements 12. The assembly is removably located in a fluid flow line 13. The filter modules 11 are joined together to form the assembly 10 such that incoming fluid at one end of the assembly passes through the filters and filtered fluid emerges at the opposite end of the assembly. The assembly 10 can be formed from any desired number of filter modules joined together.

Each filter module 11 comprises a box-shaped housing divided internally by a partition 14 into two compartments 15 and 16. Two hollow cylindrical filters 17 are housed in the compartment 16, each filter fitting on to a flange or lip 18 about an opening 19 in the partition 14. The filters 17 are inserted into and removed from the compartment 16 through removable cover plates 20 in a wall of the housing.

The walls of the two compartments 15 and 16 are provided with openings to permit intercommunication between modules of a filter assembly and also to permit communication with the flow line 13. With refer-

ence to the assembly of three modules 11 shown in Figure 2, the compartments 16 of the modules containing the filters 17 communicate with each other through the openings in the walls thereof. A removable connection member 21 is fitted about the opening in the end wall of module 22 in Figure 2 and the flow line 13 is connected to this connection member 21. At the opposite end of the assembly the opening in the end wall of the module 23 is closed by a removable cover 24. Likewise, the compartments 15 at the opposite side of the partition 14 are in communication with each other. In this case, the opening in the end wall of compartment 15 in module 22 is closed by a removable cover 24 and a connecting member 21 is provided in the end wall of the corresponding compartment 15 in the module 23 for connection to the fluid flow line 13. Thus with the assembly of three modules located in the fluid flow line 13, incoming fluid enters the compartments 16, passes through the walls of the filters 17 and filtered flow emerges through the openings 19 in the partition 14 into the compartments 15. From the compartments 15 the now filtered fluid flow continues along the flow line 13.

Alternatively, the flow direction through the filter assembly can be reversed, that is, incoming fluid enters the compartments 15, passes through the openings 19 and flows radially outwardly through the walls of the filters 17 to emerge into the compartments 16.

In the above arrangements the filter assembly 10 comprises three juxtaposed filter modules 11 with each module containing two filters 17. It will be appreciated that the filter assembly is not confined to this arrangement. The number of modules in the assembly can be one or more and the number of filters in each module can likewise be one or more. However the preferred arrangement is for two filters 17 in each module 11.

Claims

1. A filter assembly comprising at least one filter module insertable in a fluid flow line, the module containing one or more removable hollow cylindrical filter elements.
2. A filter assembly as claimed in Claim 1 in which the or each module contains a pair of filter elements.
3. A filter assembly for insertion in a fluid flow line comprising a plurality of intercommunicating filter modules, each module comprising a housing with an internal partition dividing the housing into two compartments, the compartments intercommunicating and connectable to the flow line, at least one filter element in one of the compartments of

each module and mounted at an opening in the partition whereby flow from the flow line enters the compartments at one side of the partition, passes through the filter elements and filtered flow exits along the flow line from the compartments at the opposite side of the partition. 5

4. A filter assembly as claimed in Claim 3 comprising three juxtaposed filter modules with each module containing two filter elements. 10

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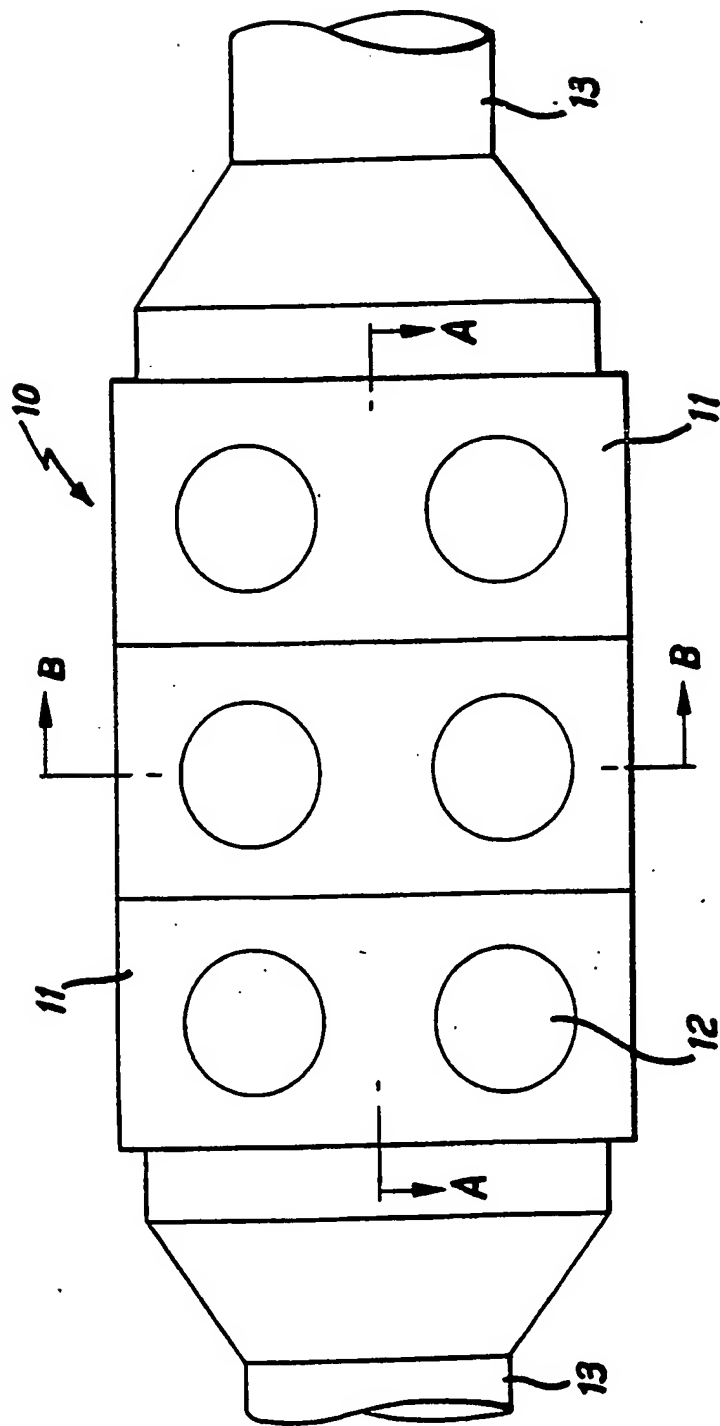


Fig. 1

